AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently amended): A driveable membrane interface probe apparatus comprising:

a driveable membrane interface probe (MIP) housing having a diameter of at least ~~about~~ 2.125 inches.

Claim 2 (Currently amended): The driveable MIP apparatus according to claim 1 wherein said driveable MIP housing is ~~adapted~~ operative to couple with a driveable rod system operative to drive said MIP housing into a subsurface.

Claim 3 (Currently amended): The driveable MIP apparatus according to claim 1 wherein said driveable MIP housing is ~~adapted~~ operative to be coupled with a drivable push and hammer systems operative to drive said MIP housing into a subsurface.

Claim 4 (Currently amended): The driveable MIP apparatus according to claim 1 wherein said driveable MIP housing is ~~adapted~~ operative for a low sidewall support drive rod string applications operative to drive said MIP housing into a subsurface.

Claim 5 (Currently amended): The driveable MIP apparatus according to claim 1, wherein said driveable MIP housing further comprises two or more permeable membranes on a periphery of said MIP housing.

Claim 6 (Currently amended): A driveable membrane interface probe apparatus comprising at least one of:

a driveable membrane interface probe (MIP) housing ~~having~~ comprising two or more permeable membranes on a periphery of said driveable MIP housing; and/or

a driveable membrane interface probe (MIP) housing comprising a cylindrical portion comprising two or more permeable membranes coupled about a periphery of said cylindrical portion, wherein said two or more permeable membranes are ~~adapted~~ operative to provide circumferential sensing.

Claim 7 (Currently amended): The driveable MIP housing of claim 6, wherein said two or more permeable membranes are arranged equidistant about a circumference of said MIP housing.

Claim 8 (Currently amended): The driveable MIP ~~-~~housing of claim 7, wherein said driveable MIP housing is operative to ~~increase likelihood of~~provide circumferential collection of volatile organic mass by said driveable MIP housing.

Claim 9 (Currently amended): A driveable membrane interface probe apparatus comprising:

a driveable membrane interface probe (MIP) housing comprising at least one of a removable waterproof electrical coupling operative to couple and decouple one or more electrical wires, and/or cables from said MIP housing, and~~/or~~ ~~an~~ removable O-ring mechanical ~~-~~coupling operative to couple and decouple mechanically at least one of conduit and/or tubing to said MIP housing, wherein at least one of said waterproof electrical coupling and/or said O-ring mechanical coupling ~~improve~~ are watertight ~~integrity~~.

Claim 10 (Currently amended): A driveable modular membrane interface probe (MIP) apparatus comprising:

a driveable modular membrane interface probe (MIP) housing comprising a plurality of modular components allowing field serviceable replacement of any malfunctioning components of said plurality of modular components, and wherein said driveable modular MIP housing is operative to receive in a cavity one or more operator-selectable elements.

Claim 11 (Currently amended): The driveable modular MIP apparatus according to claim 10, comprising at least one of:

an external barrel having a cavity; and/or

an inner core barrel assembly field-insertable into said cavity having a heater cavity, wherein said heater cavity is adapted to receive a field-insertable removable cartridge heating element.

Claim 12 (Currently amended): The driveable modular MIP of claim 10, wherein said modular MIP apparatus comprises a removable conductivity nose assembly.

Claim 13 (Currently amended): The driveable modular MIP of claim 10, wherein said modular MIP apparatus comprises a field-insertable removable cartridge heating element.

Claim 14 (Currently amended): The driveable modular MIP of claim 10, wherein said driveable modular MIP apparatus comprises at least one of a waterproof electrical connector and/or an O-ring seal.

Claim 15 (Currently amended): A driveable membrane interface probe apparatus comprising:

a driveable membrane interface probe (MIP) comprising an internal removable trap adapted to collect, absorb, and/or concentrate one or more volatile organic compounds.

Claim 16 (Currently amended): The driveable MIP apparatus according to claim 15, wherein said removable trap is adapted to detect concentration levels of said one or more volatile organic compounds, and to specifically identify said compounds through chromatographic analysis.

Claim 17 (Currently amended): The driveable MIP apparatus according to claim 15, further comprising: a calibrator operative~~adapted~~ to introduce a calibration material into said driveable MIP housing and operative to analyze an in situ gas stream using chromatographic analysis methods.

Claim 18 (Currently amended): The driveable MIP apparatus according to claim 15, further comprising means for at least one of trapping and/or concentrating of volatile organic compounds during MIP sampling and logging events.

Claim 19 (Currently amended): A membrane interface probe apparatus comprising:

a driveable membrane interface probe (MIP) comprising a heated vapor transfer line for transport of vapors collected by the driveable MIP from a body of said MIP to a surface detector suite adapted to minimize loss of volatile organic compounds in a cold transfer line.

Claim 20 (Currently amended): A driveable membrane interface probe -system comprising:

a driveable membrane interface probe (MIP);

an enhanced scanning solutions module operatively coupled to said driveable MIP; and

a sample introduction system coupled to said driveable MIP ~~adapted~~ operative to introduce calibration gas and to allow for simultaneous sampling of an in situ volatile organic gas stream for chromatographic analysis.

Claim 21 (Currently amended): A driveable membrane interface probe system comprising:

a driveable membrane interface probe (MIP) housing operative~~adapted~~ to gather data;

a global positioning system (GPS) receiver ~~adapted~~ operative to identify a location of said driveable MIP housing;

a data acquisition system operative~~adapted~~ to geo-reference -said data with said location.

Claim 22 (Currently amended): A driveable membrane interface probe system comprising:

a driveable membrane interface probe (MIP) ~~sensor comprising~~housing coupled to a mobile device in wireless communication with a data acquisition system enabling near real-time transfer of data from said MIP ~~sensor~~ housing to said data acquisition system~~a base station~~.

Claim 23 (Currently amended): The driveable MIP system of claim 22, wherein said mobile device comprises a graphical display and a control module operative ~~adapted to operate~~ to control said data acquisition system operation.

Claim 24 (Currently amended): The driveable MIP system of claim 22, wherein said mobile device is portable.

Claim 25 (Currently amended): The driveable membrane interface probe -system of claim 20, wherein the enhanced scanning solutions module further comprises:

a flow control subsystem;

a detector subsystem coupled to said flow control subsystem;

a ~~dryer/~~moisture separator subsystem coupled to said flow control subsystem;

a sampling subsystem coupled to said flow control subsystem; and

a software control subsystem coupled to at least one of said flow control subsystem, said detector subsystem, said ~~dryer/~~moisture separator subsystem, and/or said sampling subsystem, wherein said flow control subsystem is operative to be at least one of configured and/or reconfigured to include a plurality of operator-selectable measurement subsystems, operative to be coupled to said driveable MIP housing, prior to exhaust.

Claim 26 (Currently amended): The driveable membrane interface probe system of claim 25, wherein said sampling subsystem of the enhanced scanning solutions module comprises at least one of:

a sample loop;

an absorbent trap; and/or

a gas chromatography injection port.

Claim 27 (Currently amended): The driveable membrane interface probe system of claim 25, wherein the enhanced scanning solutions module further comprises at least one of:

an in situ vapor stream;

a dryer;

a moisture separator;

a moisture sensor detector;

~~an exhaust;~~

a pneumatic supply;

a power supply;

a bypass module;

a feedback signal;

a detector subsystem feedback signal;

a calibration material;

a tracer gas;

a calibration gas; and/or

a pressure control subsystem.

Claim 28 (Currently amended): The driveable membrane interface probe system of claim 20, wherein the enhanced scanning solutions module further comprises:

a detector subsystem operative to be selectably coupled to an in situ gas stream;

a sampling subsystem operative to be selectably coupled to an in situ gas stream; and

a software control subsystem coupled to said detector subsystem, and said sampling subsystem,

wherein the enhanced scanning solutions module is operative to be at least one of configured and/or reconfigured to include a plurality of operator-selectable measurement subsystems, operative to be coupled to said driveable MIP housing, prior to exhaust.

Claim 29 (Currently amended): The driveable membrane interface probe system of claim 28, wherein the enhanced scanning solutions module further comprises:

a dryer/moisture separator subsystem coupled to said software control subsystem.

Claim 30 (Currently amended): The driveable membrane interface probe system of claim 28, wherein said sampling subsystem of the enhanced scanning solutions module comprises at least one of:

a sample loop;

an absorbent trap; and/or

a gas chromatography injection port.

Claim 31 (Currently amended): The driveable membrane interface probe system of claim 28, wherein the enhanced scanning solutions module further comprises at least one of:

an in situ vapor stream;

a dryer;

a moisture separator;

a moisture sensor detector;

~~an exhaust;~~

a pneumatic supply;

a power supply;

a bypass module;

a feedback signal;

a detector subsystem feedback signal;

a calibration material;

a tracer gas;

a calibration gas; and/or

a pressure control subsystem.

Claim 32 (Cancelled): ~~The membrane interface probe system of claim 28, wherein said enhanced scanning solutions module comprises on-the-fly reconfigurability, and further comprises:~~

~~a plurality of operator-selectable modes.~~

Claim 33 (Currently amended): The driveable membrane interface probe system of claim 28, wherein said enhanced scanning solutions module further comprises:

a plurality of pre-programmable ~~operating modes~~operator-selectable measurement subsystems, operative to be coupled to said driveable MIP housing, that at least one of interactively configure and/or reconfigures to perform any of a plurality of measurement functions, subject to particular conditions; and/or

a plurality of on-the-fly, configurable and/or reconfigurable, operator-selectable measurement systems operative to be coupled to said driveable MIP housing.

Claim 34 (Currently amended): The driveable membrane interface probe system of claim 28, wherein said enhanced scanning solutions module further comprises:

an interface between said detector subsystem and a gas handling subsystem allowing insertion of at least one of: a sample, another detector, a flowpath, a flow path rate, a dryer, a moisture separator, a moisture sensor detector, a bypass, ~~an exhaust,~~ a feedback, a detector subsystem feedback, a tracer gas, a calibration gas, a calibration material, a sample loop, an absorbent trap, a gas chomatographic introduction port, and/or a trap.

Claim 35 (Currently amended): The driveable membrane interface probe system of claim 28, wherein said software control subsystem of the enhanced scanning solutions module comprises at least one of:

a timer;

a data logger;

a sequencer;

a valve control system;

a monitor;

a display; and/or

a recording function.

Claim 36 (New): The driveable membrane interface probe system of claim 1, wherein said driveable MIP housing is operative to be driven into, and withdrawn from a subsurface wherein said subsurface comprises at least one of a soil and/or ground water below the surface of the earth.